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## BATS FROM PALAWAN, PHILIPPINE ISLANDS

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The mammalian fauna of the Philippine Islands is still so imperfectly known that Hollister, in his excellent list of the species, in 1912, records but four bats for the large southwestern island of the group, Palawan. For this reason it seems worth while to place on record the following notes on a small collection of seven species made in this island at Puerto Prusse, by the Beal-Steere Expedition some years ago, and now in the collection of the Museum of Zoology, University of Michigan.

*Pteropus vampyrus laevis* Mearns.—A single large fetus seems to be referable to this fruit-bat, which is of general distribution throughout the archipelago. Hollister mentions specimens from Palawan in the U. S. National Museum.

*Taphozous philippinensis* Waterhouse.—A single specimen in the collection agrees with the general description. Waterhouse does not record the exact origin of his type. Hollister mentions it from Luzon and Mindanao.

**Rhinolophus anderseni aequalis**, new subsp.

*Type*.—An alcoholic male, No. 53112, Mus. of Zool., University of Michigan, from Puerto Prusse, Palawan, Philippine Islands. Collected by J. B. Steere.

*Diagnosis*.—Similar to *R. anderseni*, but with a slightly larger skull and the metacarpals slightly longer, nearly of equal length instead of slightly graduated.

*Description*.—No color comparison is possible. This is one of the simplex group as defined by Andersen, with the connecting-process of the nose-leaf slightly convex in side view, though rather higher than in the typical form of this group, with its anterior margin nearly vertical. In general it corresponds fairly well with the description of the type of *anderseni*, but the metacarpals are practically of equal length instead of being slightly graduated, and the dimensions of these bones and their phalanges, as well as the cranial measurements, are slightly larger.

*Measurements*.—The dimensions of the type are as follows, with those of the type of *R. anderseni* in parentheses: forearm, 45 (45); tail, 21.5; metacarpal III, 34 (30.5); III<sup>1</sup>, 13 (12); III<sup>2</sup>, 17 (21); metacarpal IV, 34.5 (32); IV<sup>1</sup>, 9 (8); IV<sup>2</sup>, 11 (13); metacarpal V, 34.5 (32.8); V<sup>1</sup>, 10 (9.5); V<sup>2</sup>, 10.5 (12); width of nose-leaf, 8 (10); tibia, 20.5 (20); foot (c. u.), 9 (10).

Skull: Occiput to front of canine, 21 (20); mastoid width, 10 (9); zygomatic width, 10.5 (9.2); upper cheek teeth, 8.2 (8); lower tooth row, 10 (8.5); width outside base of upper canines, 6.

*Remarks*.—The type of *R. anderseni* was believed to have come from Luzon. The Palawan specimen here described,

although agreeing in general with Cabrera's (1909) careful description, differs in the proportionally longer fingers and in having the metacarpals practically equal instead of graduated in length. Its relationship to the former is perhaps best expressed by a trinomial.

*Hipposideros bicolor* (Temminck).—A single specimen from Palawan, whence the species has already been reported by Elera (see Hollister, 1912, p. 15).

*Hipposideros diadema griscus* (Meyen).—The type locality of this race is Luzon, and Andersen records it from Mindanao, and the smaller islands, Leyte, Guimaras, and Catanduanes. The present collection contains two from Puerto Prusse, Palawan, apparently the first reported from this island.

*Myotis rufo-pictus* (Waterhouse).—The large Philippine *Myotis* allied to *M. formosus* Hodgson is apparently distinct from the continental species, and I am applying Waterhouse's name to it. The single specimen in the collection from Palawan and Elera's record of "*formosus*" from Luzon seem to be the only definite localities hitherto recorded for it in these islands.

The bats of this type are strikingly colored, and in their golden-rufous pelage and the bright orange areas along the bones of the wing, contrasting with the otherwise blackish membranes, they somewhat resemble a large edition of *Kerivoula picta*. Hodgson's type-specimen of *Vespertilio formosus* came from Central Nipal, and was later placed in the British Museum, where in 1858 it was examined by Tomes and compared with two other specimens from China. The latter Tomes believed to differ slightly in the form of the ears and in possessing much brighter colors, so that he proposed in a provisional way the name *Vespertilio rufo-niger* for the Chinese animal, mentioning particularly a specimen in the British

Museum from Shangai. This name, though long overlooked, is probably to be recognized for the Chinese race of *formosus* which will stand as *Myotis formosus rufo-niger*. His comparison with the type of Waterhouse's *rufo-pictus* from "Philippines," proved the latter to be a much larger animal than Hodgson's type of *formosus*; moreover, it was "quite an immature individual, so that if full-grown it would probably differ considerably in size from that species." It was, perhaps, on account of its immaturity that Tomes could not detect the third minute premolar in either jaw.

The forearm in three of the continental specimens noted by Tomes, including the type of *formosus*, is 1" 10'" or 46.5 mm., whereas in the adult from Palawan this dimension is 58 mm. Other measurements of this specimen (53119, Univ. Mich.) are: total length, 116 mm.; tail, 60; ear from meatus, 17; tibia, 27; foot, 12.5; metacarpal II, 53; metacarpal III, 54.5; III<sup>1</sup>, 23; III<sup>2</sup>, 16; metacarpal IV, 50; IV<sup>1</sup>, 16.5; IV<sup>2</sup>, 12; metacarpal V, 51; V<sup>1</sup>, 15; V<sup>2</sup>, 9. The skull measures: greatest length, 21; basal length, 18; palatal length, 11.5; zygomatic width, 12.5; mastoid width, 10; outside m<sup>3</sup>, 8; upper tooth row, 10; lower tooth row, 10.

Indications are that the color of the pelage is much duller in the Philippine than in the Nepalese bat. Dobson in his Catalogue of Chiroptera in the British Museum also includes under *formosus* a specimen from the island of Formosa.

*Pipistrellus imbricatus* (Horsfield).—A single individual from Palawan is provisionally referred to this species. Although topotypes from Java are available for comparison, the condition of the specimen does not warrant basing a more exact determination upon it. Hollister includes the species in his list of Philippine mammals, on the basis of Thomas's record of it from Luzon.

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